

Appln. No. 10/019,967  
Amdt. Dated August 29, 2003  
Reply to Office Action of May 29, 2003  
Attorney Docket No. 6009-4616

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (currently amended) A method for liquid-liquid extraction of copper from an aqueous solution containing a large amount more than about 40 g/l of sulphates the method comprising feeding an organic extraction solution and said aqueous solution into a plurality of extraction stages , said extraction solution containing an extractant, in liquid-liquid extraction, characterized in that extracting copper in said extraction stages from said aqueous solution in the presence of said organic extraction solution by raising the viscosity of an said organic extraction solution is adjusted within the to a range of 3 -11 cP and that dispersing the aqueous solution into drops in the extraction solution by adjusting the volumetric ratio of the extraction solution and an to the aqueous solution in an extraction mixture to between 0.7 - 1.0, whereby the aqueous solution is dispersed into drops in the extraction solution.

2. (currently amended) A method according to claim 1, characterized in that wherein the viscosity of the extraction solution is raised by raising the content of an the extractant in the extraction solution.

3. (currently amended) A method according to claim 2, characterized in that wherein the viscosity of the extraction solution is raised by regulating the extractant content of the extraction solution in the range of 15 - 70 vol. %.

Appln. No. 10/019,967  
Amdt. Dated August 29, 2003  
Reply to Office Action of May 29, 2003  
Attorney Docket No. 6009-4616

4. (currently amended) A method according to claim 1, **characterized in that** wherein the ratio ( $\Theta/A$ ) between the organic solution and the aqueous solution ~~coming to~~ fed into the extraction stage ~~stages from outside~~ is regulated in the range of 0.15 - 1.

5. (currently amended) A method according to claim 3, **characterized in that** wherein said ~~in treating an~~ aqueous solutions ~~with~~ has a copper content of maximum up to about 2 g/l, and the viscosity of the extraction solution is raised by adjusting the content of the extractant in the extraction solution to the range of 15 - 25 vol. %.

6. (currently amended) A method according to claim 5, **characterized in that** wherein the ~~external pumping~~ ratio of the extraction solution and the aqueous solution fed into the extraction stages adjusted to the range of 0.2 - 0.5 and the corresponding ~~external pumping~~ ratio between a stripped copper electrolyte and the aqueous solution of the extraction is adjusted to the range of 0.08 - [[0.02]] 0.2.

7. (currently amended) A method according to claim 3, **characterized in that in** treat~~ing an~~ said aqueous solution ~~with~~ has a copper content of 2 - 4 g/l, and the viscosity of the extraction solution is raised by adjusting the content of the extractant in the extraction solution to the range of 15 - 30 vol. %.

8. (currently amended) A method according to claim 7, **characterized in that** wherein the ~~external pumping~~ ratio of the extraction solution and the aqueous solution fed into the extraction stages is adjusted to the range of 0.3 - 0.7 and the corresponding ~~external pumping~~

Appln. No. 10/019,967  
Amtd. Dated August 29, 2003  
Reply to Office Action of May 29, 2003  
Attorney Docket No. 6009-4616

ratio between ~~the a~~ stripped copper electrolyte and the aqueous solution of the extraction is adjusted to the range of 0.15 - 0.25.

9. (currently amended) A method according to claim 3, ~~characterized in that in treating an said aqueous solution with has a copper content of 4 - 8 g/l, and the viscosity of the extraction solution is raised by adjusting the content of the extractant in the extraction solution to the range of 25 - 50 vol. %.~~

10. (currently amended) A method according to claim 9, ~~characterized in that the external pumping ratio of the extraction solution and the aqueous solution fed into the extraction stages is adjusted to the range of 0.4 - 0.8 and the corresponding external pumping ratio between ~~the a~~ stripped copper electrolyte and the aqueous solution of the extraction is adjusted to the range of 0.25 - 0.50.~~

11. (currently amended) A method according to claim 3, ~~characterized in that in treating an said aqueous solution with has a copper content of over 8 g/l, and the viscosity of the extraction solution is raised by adjusting the content of the extractant in the extraction solution to the range of 40 - 70 vol. %.~~

12. (currently amended) A method according to claim 11, ~~characterized in that the external pumping ratio of the extraction solution and the aqueous solution fed into the extraction stages is adjusted within the range of 1 - 4 and the corresponding external pumping ratio between ~~the a~~ stripped copper electrolyte and the aqueous solution of the extraction is adjusted within the range of 0.8 - 3.~~

Appln. No. 10/019,967  
Amdt. Dated August 29, 2003  
Reply to Office Action of May 29, 2003  
Attorney Docket No. 6009-4616

13. (currently amended) A method according to claim 1, **characterized in that** wherein the viscosity of the extraction solution is raised by using alifatic aliphatic hydrocarbons, kerosenes, with a viscosity of 2.7 - 3.2 cP when measured at ambient temperature, as diluting agent for the extraction solution.

14. (currently amended) A method according to claim 1, **characterized in that** wherein the viscosity of the extraction solution is raised by using aromatic hydrocarbons, kerosenes, with a viscosity of about 3 cP when measured at ambient temperature, as diluting agent for the extraction solution.

15. (currently amended) A method according to any of the above claim 1, **characterized in that** wherein the viscosity of the extraction solution is raised by using a mixture of alifatic aliphatic and aromatic hydrocarbons, with a viscosity of minimum 2.7 cP when measured at ambient temperature, as diluting agent for the extraction solution.

16. (currently amended) A method according to claim 1, **characterized in that** wherein the sulphate content of the aqueous solution fed to solvent extraction is a minimum of 40g/l.

17. (currently amended) A method according to any of the above claim 1, **characterized in that** wherein the extracting solutions flow through each stage of the extraction equipment stage at essentially the same time.

18. (currently amended) A method according to any of the above claim 1, **characterized in that** wherein the method further includes washing and stripping stages and the

Appln. No. 10/019,967  
Amdt. Dated August 29, 2003  
Reply to Office Action of May 29, 2003  
Attorney Docket No. 6009-4616

extracting solutions flow through the washing and stripping stages ~~of the equipment~~ more slowly than the actual extracting stages.